ABSTRACT

Much Heavy-Oil exists in the Alaskan Arctic, below thick Permafrost zones, and Offshore, in deep water: two Cold Environments known to reduce Heavy-Oil fluidity. Steam Injection from cold surfaces is the best method to economically restore Heavy-Oil fluidity downhole.
It requires, however, minimum heat losses from well tubulars carrying Steam or heated Heavy-Oil. The patented process of Reference (1) uses a Multilateral well. Combining it with easy access to and precise control of its Branch-wells temperatures, can do it, with:
- circulating downhole a colder fluid, to sub-cool the outer-casing,
- using two "super-insulated", vertical coaxial tubulars, dedicated to carrying Steam downhole, while lifting-up heated Heavy-Oil around Steam,
- connecting several horizontal Branch-wells to multiple pairs of vertical, or curved, "super-insulated" tubular Thermal Barriers, with downhole flow-control Modular Systems, to sequentially switch Branch-wells from Steam Injection to Heavy-Oil Production, and vice-versa.